Contents of Volume 8

NUMBER 1

Leo Motus III Message from the Editor-in-Chief

Contributed Papers

P. S. Tan, B. K. A. Ngoi, S. S. G. Lee and **L. E. N. Lim** 1 A knowledge-based advisor for the automatic selection and sequencing of orienting devices for vibratory feeding

X. D. Fang and **S. S. Shivathaya** 15 Eliciting knowledge for material design in steel making using paper models and codification scheme

R. J. Kuo 25 Intelligent diagnosis for turbine blade faults using artificial neural networks and fuzzy logic

Raghunathan Rengaswamy and **Venkat Venkatasubramanian** 35 A syntactic pattern-recognition approach for process monitoring and fault diagnosis

S. Parthasarathy 53 Episode analysis: a practical approach for temporal reasoning in automated processes

Samuel Pierre, Michel-Ange Hyppolite, Jean-Marie Bourjolly and **Oumar Dioume** 61 Topological design of computer communication networks using simulated annealing

Hubert A. B. te Braake and **Gerrit van Straten** 71 Random activation weight neural net (RAWN) for fast non-iterative training

Hong-Yuan Liao, Shu-Jen Liu, Liang-Hua Chen and **Hsiao-Rong Tyan** 81 A bar-code recognition system using backpropagation neural networks

Brief Papers

Zhao-Qing Ma and **Zeng-Ren Yuan** 91 Real-time navigation and obstacle avoidance based on grids method for fast mobile robots

Jixin Ma and **Brian Knight** 97 Building temporal constraints into knowledge bases for process control—an examination

Book Review

M. Rodrigues 101 *Toward learning robots*

Conference Calendar 103

NUMBER 2

Contributed Papers

Q. Wang, J. Y. Zhu, Y. Q. Shu, M. Rao and **K. T. Chuang** 115 An intelligent design environment for conceptual process design

D. S. Hong and **H. S. Cho** 129 An neural-network-based computational scheme for generating optimized robotic assembly sequences

Marco Adinolfi and **Amedeo Cesta** 147 Heuristic scheduling of the DRS communication system

Yoshio Harada, Tadashi Ohta and **Nobuyoshi Terashima** 157 A method of automatic state acquisition for conflict detection of telecommunication service descriptions

Gideon Cohen 169 Concurrent system to resolve real-time conflicts in multi-robot systems

C. L. Karr, B. Weck, D. L. Massart and **P. Vankeerberghen** 177 Least median squares curve fitting using a genetic algorithm

Brad Petrus and **Amro El-Jaroudi** 191 Automatic recognition of fast and slow phases in nystagmic eye movements using a neural network

Alexander E. Gegov 201 Decentralized fuzzy control of multivariable systems by direct decomposition

S. V. Barai and **P. C. Pandey** 211 Performance of the generalized delta rule in structural damage detection

Brief Paper

Bin Yu and **Baozong Yuan** 223 A global optimum clustering algorithm

Book Review

Jaak Tepandi 229 Methods and tools for applied artificial intelligence

Conference Calendar 231

NUMBER 3

Keynote Paper

M. G. Rodd 243 Safe AI—is this possible?

Contributed Papers

A. G. Stothert and **I. M. MacLeod** 251 A logic of temporal variables

La Moyne L. Porter II and **Kevin M. Passino** 261 Genetic adaptive observers

S. M. Smith 271 ALTRUISM: interpretation of three-dimensional information for autonomous vehicle control

C. K. Lee and **S. P. Wong** 281 A fuzzy approach to determine morphological thinning algorithms for fast removal of unwanted skeletal legs

Y. M. Enab 299 Controller design for an unknown process, using simulation of a human operator

B. Benoist, P. Gaillard, M. Pigeon and **P. Morizet-Mahoudeaux** 309 Expert system for the characterization of defect signals in steam generator tubes

K. P. Dabke, L. N. Binh and **S. P. Lau** 319 Expert system for the design of optical fibre communications links

Samuel Pierre 333 A new methodology for generating rules in the topological design of computer networks

A. Giannone and **P. Maresca** 345 The use of metagrammars to help construct reverse engineering tools for existing software comprehension

Brief Paper
T. Satyanarayana, G. Subramanyam and **K. V. Rama Rao** 355 Implementing an expert system for fault diagnosis of electronic equipment

Book Review
Chris Price 365 Prime time freeware for AI

Conference Calendar 367

NUMBER 4

Contributed Papers
Roy Leitch and **Enrico Martinelli** 379 Qualitative simulation and constraint logic programming

Shinichi Nakasuka and **Takazo Koishi** 391 Automated extraction of attribute hierarchies for an improved decision-tree classifier

A. Armando, A. Cimatti, E. Giunchiglia, P. Pecchiari, L. Spalazzi and **P. Traverso** 401 Flexible planning by integrating multilevel reasoning

D. A. Linkens and **Minyou Chen** 413 Expert control systems—I. Concepts, characteristics and issues

P. K. Dash, A. C. Liew, S. Rahman and **S. Dash** 423 Fuzzy and neuro-fuzzy computing models for electric load forecasting

H. Shiva Kumar, C. S. Krishnamoorthy and **N. Rajagopalan** 435 A process model for knowledge-based concrete bridge design

István Matijevics and **Laios Józsa** 449 An expert-system-assisted reliability analysis of electric power networks

Brief Papers
B. Ramsay, K. Hasan and **I. Moyes** 461 Electric power system alarm management with an OOP toolkit

M. V. Nagendra Prasad, Amar Gupta and **Vanessa Feliberti** 469 Correction of slant in handwritten numerals for automated document processing

Author's Reply
S. Parthasarathy 473 Building temporal constraints into knowledge bases for process control—an examination

Conference Calendar 475

NUMBER 5

Contributed Papers
Atsushi Aoyama, Francis J. Doyle III and **Venkat Venkatasubramanian** 483 A fuzzy neural-network approach for nonlinear process control

Eric G. Laukonen and **Kevin M. Passino** 499 Training fuzzy systems to perform estimation and identification

Mathew J. Palakal and **Anand V. Hudli** 515 Augmenting parallel reasoning mechanisms with learning networks in expert systems

D. A. Linkens and **Min-You Chen** 527 Expert control systems—2. Design principles and methods

G. S. Hura and **T. Srikanthan** 539 A graph-theoretic approach to expert-system testing

Jeng-Horng Lai and **Cheng-Ching Yu** 549 Qualitative-model simplification with an application to multistage separation processes

Brian Knight, Don Cowell and **Keith Preddy** 561 An object-oriented support tool for the design of casting procedures

Qiuming Zhu and **Ahmed Y. Tawfik** 569 Quantitative object motion prediction by an ART2 and Madaline combined neural network: concepts and experiments

Q. Zhou, G. S. Hong and **M. Rahman** 579 A new tool life criterion for tool condition monitoring using a neural network

Book Reviews
Vir V. Phoha 589 Intelligent hybrid systems

Imre J. Rudas 590 Fuzzy reasoning in information, decision and control systems

Conference Calendar 593

NUMBER 6

Safety, Reliability and Applications of Emerging Intelligent Control Technologies

T. S. Ng and **Y. S. Hung** 599 Preface

Keynote Paper
Warren L. Persons, Gregory J. Suski and **Gary L. Johnson** 601 The safety implications of emerging software paradigms

Contributed Papers
P. R. Croll, A. J. C. Sharkey, J. M. Bass, N. E. Sharkey and **P. J. Fleming** 615 Dependable, intelligent voting for real-time control software

Y. S. Hung and **S. Lam** 625 Fail-safe stability for dynamic systems using neural-network controllers

Ah Chung Tsoi and **Andrew Back** 633 Static and dynamic preprocessing methods in neural networks

Grantham K. H. Pang, Raymond Tang and **Stephen S. Woo** 643 A process-control and diagnostic tool based on Continuous Fuzzy Petri Nets

W. A. Wright 651 Stochastic tuning of a spacecraft controller using neural networks

S. K. Tso, T. X. Zhu, Q. Y. Zeng and **K. L. Lo** 657 Dynamic voltage security assessment using a fuzzy severity index

Kit Po Wong 665 Solving power system optimization problems using simulated annealing

General Papers

Contributed Papers

John Hunt 671 Testing control software using a genetic algorithm

Ernest L. McDuffie, Moti Schneider, Frederick B. Buoni, Eliahu Shnaider, Melech Schneider and **Louis A. Martin-Vega** 681 Using scheduling in flexible manufacturing systems

Atsushi Aoyama and **Venkat Venkatasubramanian** 689 Internal model control framework using neural networks for the modeling and control of a bioreactor

G. Prem Kumar and **P. Venkataram** 703 Network fault diagnosis using a realistic abductive reasoning model

Alok Barua and **Nitin Patel** 709 EXSHOF-II: active filter design, from approximation function to graphic display of the circuit

Book Review

Helen Fuell 723 Worldwide Intelligent Systems: Approaches to Telecommunications and Network Managment

Conference Calendar 725

List of Reviewers I